

## DESCRIPTION OF A NEW SPECIES OF HADOGENES AND OF THE MALE OF HADOGENES GUNNINGI PURC.

BY JOHN HEWITT, B.A. (CANT.).

### HADOGENES GRACILIS, sp. nov.

THE scorpion here described was collected in April, 1910, for the Transvaal Museum by Mr. J. H. van Dam at De Kroon, Crocodile River, a station between the Pretoria and Rustenburg Districts.

Its characters are as follows :—

*Female*.—Carapace very shallowly emarginate in front, about as broad as long, densely granular throughout, rather coarsely at the sides and just in front of the median eyes; lateral eyes almost equal, the middle one distant about  $\frac{1}{5}$ — $\frac{1}{4}$  of its diameter from the anterior eye and  $\frac{1}{3}$ — $\frac{1}{2}$  of its own diameter from the posterior eye (in one specimen there is on the left side only a small accessory eye between the middle and posterior eyes), superciliary ridges of median eyes smooth.

First tergite finely shagreened at the sides, the succeeding tergites smooth, but with some coarse pitting, the seventh tergite very finely shagreened. Seventh segment broader than long. Tail  $4\frac{1}{2}$  times the length of the cephalothorax, which is equal to the first caudal segment together with  $\frac{2}{5}$ — $\frac{1}{2}$  of the second. First caudal segment highest and widest posteriorly, the height exceeding the breadth, the superior keels practically smooth; in succeeding segments superior keels are coarsely denticulate, and the terminal tooth is spiniform in segment 2, enlarged also in segment 3. Lateral keels smooth, most definite in the anterior half of segment 1, in the succeeding segments gradually becoming suppressed and quite wanting in the fifth segment. Inferior keels coarsely but irregularly denticulate in segment 2, more strongly so in segment 5, which has 7 to 10 larger teeth in each keel; nearly smooth in segments 1 and 3, irregularly roughened in segment 4. Vesicle slightly compressed, a little broader than the hind end of segment 5; very finely shagreened dorsally and ventrally, the upper side almost straight.

Pectines usually with 18 or 19 teeth, but varying between 15 and 20.

Fingers of pedipalps lobed.

Colour, light brown mingled with olive green: the legs all pale, almost yellowish, as also is the vesicle laterally.

*Male*.—Resembles the female, excepting in that all the dorsal tergites are shagreened excepting on the pair of small oval depressions situated just behind the anterior raised borders of each segment. The last abdominal tergite very slightly longer than broad, narrowed behind, but not semicircularly rounded.

Tail  $8\frac{1}{2}$  times the length of cephalothorax.

The first five segments all laterally compressed and much elongated.

Inferior keels of caudal segments irregularly roughened, but not denticulate in any segment.

Vesicle rather coarsely shagreened.

Pectines usually with 19 or 20 teeth, but sometimes only 18.

## MEASUREMENTS.

	Female.	Male.
Total length ... ..	128 mm.	190 mm.
Length of cephalothorax ... ..	15·75 mm.	15 mm.
Breadth of cephalothorax ... ..	15·75 mm.	15 mm.
Length of last abdominal tergite ... ..	10 mm.	11·5 mm.
Breadth of last abdominal tergite ... ..	13·75 mm.	11 mm.
Length of tail ... ..	68 mm.	128 mm.
Length of first caudal segment ... ..	10·3 mm.	20 mm.
1st caudal segment, posterior height	3·8 mm.	3·9 mm.
1st caudal segment, anterior height...	2·25 mm.	2 mm.
1st caudal segment, posterior breadth	2·9 mm.	2·9 m.
1st caudal segment, anterior breadth	2·6 mm.	2·4 m.
Length of 2nd caudal segment ... ..	12·25 m.	25 m.
Length of 3rd caudal segment ... ..	12·25 m.	26m.
Length of 4th caudal segment ... ..	13 m.	26·75 m.
Length of 5th caudal segment ... ..	13 m.	23·5 m.
Length of vesicle ... ..	9 m.	9·75m.
Height of vesicle ... ..	3·25 m.	3 m.
Breadth of vesicle ... ..	2·75 m.	2·75 m.
Length of femur of pedipalp ... ..	14 m.	15·25 m.
Width of upper surface of same ... ..	5·5	5
Width of anterior surface of same...	3·85	3·75
Length of hand ... ..	30	29
Width of hand ... ..	10·25	8·75
Length of hand back ... ..	16	15·5
Length of movable finger ... ..	17·5	16·25

The following species of *Hadogenes* are known to occur in the Transvaal :—

*H. gunningi* Purc., Pretoria neighbourhood.

*H. granulatus* Purc., Rustenburg District, male only known.

*H. bicolor* Purc., Zoutpansberg District, female only.

*H. gracilis*, sp. nov., with distribution as above.

Also probably *H. troglodytes* Pet. and perhaps *H. betschuanicus* Pent. described from British Bechuanaland.

The species are easily distinguished by the characters of the caudal segments. In *H. gracilis* the caudal segments are longer and more compressed from side to side than in any other species known to me.

## HADOGENES GUNNINGI PURC.

This Transvaal species of *Hadogenes* was described by Dr. Purcell in the Annals of the South African Museum, 1899, vol. 1, p. 435, from several female specimens.

The male resembles the female in colour and other general characters, but differs in that it is of more slender build, the tail in particular being considerably more elongated; also the last abdominal tergite is relatively longer and narrower.

Tail six times as long as the carapace, which is as long as the first together with one-fifth of the second caudal segment. Terminal tooth of superior crests enlarged and practically spiniform in caudal segments 2 and 3 (enlarged also in segment 4 of our largest specimen); the superior keels slightly denticulate in segments 2 and 3, more so in segments 4 and 5.

Inferior keels with rough irregularly disposed almost denticulate granules in segment 5 and to a less extent also in the preceding segments, where, however, the granules are not denticulate.

Lateral keel stronger in segment 1 than in any of the other segments; lateral surfaces not granular except in segment 5 and to a slight extent also in segment 4.

Vesicle somewhat compressed; upper side straight, below finely granular.

Width of upper surface of femur of pedipalp and of hand considerably narrower than in the female.

Pectines: 17-20.

Total length: 118 mm.

Length of carapace: 12.5 mm. Breadth: 13 mm.

Length of last abdominal tergite: 8 mm. Breadth: 10 mm.

Length of tail: 75 mm.

Length of segment 1: 10.5 mm.

Length of segment 2: 13.5 mm.

Length of segment 3: 13.5 mm.

Length of segment 4: 15 mm.

Length of segment 5: 15 mm.

Length of vesicle: 7.5 mm.

Length of femur of pedipalp: 12 mm.

Width of upper surface of same: 4 mm.

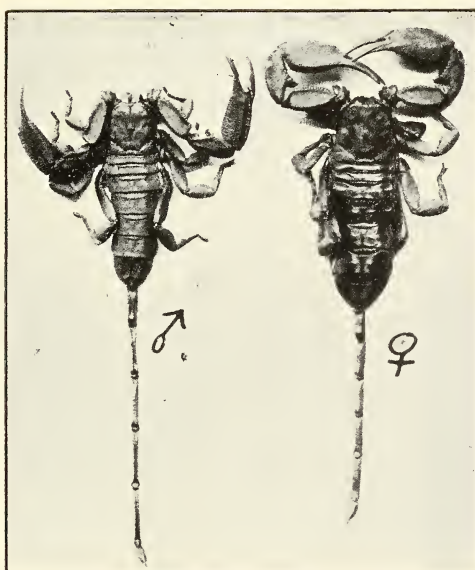
Length of hand: 24 mm.

Width of hand: 6.5 mm.

Dr. Purcell, to whom I am indebted for much information on the subject of Transvaal Arachnida, considers the shape of the first caudal segment to be a character of considerable importance in the genus *Hadogenes*, and, accordingly, I give precise measurements of this segment in both male and female.

	Male.		Female.
Length of first caudal segment ...	10.5 m.m.	...	7.5 m.m.
Greatest breadth (posteriorly) ...	2.75 "	...	2.75 "
Breadth anteriorly... ..	2.5 "	...	2.65 "
Greatest height (posteriorly) ...	3.5 "	...	3.4 "
Height anteriorly ... ..	1.75 "	...	1.9 "

Very young specimens of this species exhibit some of the characteristic features of the species, but differ from the adults in their much abbreviated tails.



**Hadogenes gunningi** Pure.